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## DELDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DELDOT MUTCD) PART 3: MARKINGS

### FREQUENTLY ASKED QUESTIONS MAY 2009

The following guidelines supplement standards and guidelines contained in the DeIDOT MUTCD – Part 3: Markings.

#### STOP LINES

##### 1. When should stop lines be installed?

Stop lines should be used to indicate the point behind which vehicles are required to stop in compliance with a STOP sign, traffic signal, or some other traffic control device. Stop lines should be installed on all approaches to signalized intersections and on the stop-controlled approaches to unsignalized intersections of two state-maintained roadways and commercial/development entrances along state-maintained roadways. Stop lines shall not be installed with YIELD signs.

*DeIDOT MUTCD Reference: Section 3B.16*

##### 2. Where should stop lines be installed at intersections?

Stop lines should be placed a minimum of 4 feet in advance of the crosswalk at controlled intersections. In the absence of a marked crosswalk, the stop line should be placed at the desired stopping point, but should be placed no more than 30 feet nor less than 4 feet from the nearest edge of the intersecting traveled way. Stop lines should be placed to allow sufficient sight distance to all other approaches to an intersection; however, stop lines should not be placed within the turning path of conflicting traffic.

*DeIDOT MUTCD Reference: Section 3B.16*

##### 3. Where should stop lines be installed in relation to traffic signal heads?

Except where the width of an intersecting roadway or other conditions make it physically impractical, stop lines should be located not less than 40 feet prior to the signal heads and not more than 180 feet prior to the signal heads unless a supplemental near side signal head is provided. Existing stop lines that do not meet these standards should not be relocated without an approved signal plan.

*DeIDOT MUTCD References: Section 4D.15 and Figure 4D.2*

##### 4. Can stop lines be staggered or skewed (i.e., not perpendicular to the travel lanes)?

DeIDOT's standard is to provide a continuous stop line perpendicular to the travel lanes; however, staggered stop lines can improve a driver's view of pedestrians, provide better sight distance for turning vehicles, and increase the turning radius for turning vehicles. If site specific conditions indicate a need for staggered stop lines, they shall only be used if approved by the DeIDOT Traffic Section. Stop lines should not be skewed.

## CROSSWALKS

### 5. What is the standard width of crosswalk?

Crosswalks are typically 6 feet wide. At crossings with heavy pedestrian activity or across high speed roadways (i.e.,  $\geq 40$  mph posted speed limit or 85<sup>th</sup>-percentile speed), crosswalks should be 10 feet wide. For example, at an intersection of a high speed roadway with a low speed roadway, the crosswalks should be 10 feet wide across the high speed roadway and 6 feet wide across the low speed roadway. Engineering judgment should be used to determine whether wider crosswalks should be used at other locations (e.g., school zones, unsignalized crossings, etc.).

In addition, the crosswalk width should be equal to or greater than the walkway width approaching that particular crosswalk. For example, a crosswalk serving a 10-foot shared used path should be 10 feet wide across a low speed roadway.

*DeIDOT MUTCD Reference: Section 3B.17*

## LONGITUDINAL PAVEMENT MARKINGS AT INTERSECTIONS

### 6. When should edge lines be broken at intersection and driveways?

Except for dotted edge line extensions, edge line markings shall not be continued through intersections or major driveways. Edge line pavement markings should not be broken for minor driveways. Engineering judgment should be used to determine whether a driveway is considered “major” or “minor.” Striping modifications at driveways should not be made without approval of the DeIDOT Traffic Section.

*DeIDOT MUTCD Reference: Section 3B.06*

### 7. Where should edge lines be terminated at intersections and driveways?

If there is no edge line on the intersecting roadway, edge lines should be continued around the radius of the intersection or driveway and terminated at the point of tangency (PT).

### 8. What is the standard length of the solid lane line separating through lanes at a signalized intersection when the left-turn and right-turn lanes have unequal lengths?

The solid lane line(s) separating two or more through lanes on the approach to a signalized intersection should match the length of the longer of the solid lines separating the through and left-turn or right-turn lanes (i.e.,  $\frac{1}{2}$  the length of the longer turn lane) and should be a maximum of 150 feet long. For example, on an approach to an intersection with a 200-foot left-turn lane and a 150-foot right-turn lane, the solid lane line separating the through lanes should be 100 feet long (i.e.,  $\frac{1}{2}$  the length of the longer turn lane).

*DeIDOT MUTCD References: Section 3B.04, Section 3B.19, Figure 3B-7B, and 3B-21B*

## **9. How far should no-passing zone markings extend at an intersection?**

On roadways with centerline markings, no passing zones markings should extend a minimum of the distances shown in DeIDOT MUTCD Table 3B-1 on all four approaches to an intersection. No passing zone markings should extend a minimum of 200 feet on all four departure legs of an intersection.

*DeIDOT MUTCD References: Section 3B.01, Section 3B.02, Table 3B-1, Figure 3B-5*

## **10. When should acceleration lanes be removed?**

Removal of existing acceleration lanes should be considered if the length of the acceleration lane does not meet the design requirements of DeIDOT Road Design Manual (see Chapter 7 and Figure 7-19) and/or the AASHTO Green Book. Removal of acceleration lanes should be approved by the DeIDOT Traffic Section.

## **PAVEMENT MARKING MATERIALS**

### **11. What type of pavement marking material should be used for various pavement marking installations?**

For projects that involve resurfacing of a roadway and/or new pavement installation (e.g., Pavement and Rehabilitation Program, large capital projects, etc.), the “Striping Item Usage Guidelines” located in DeIDOT’s Design Resource Center (see website below) should be consulted to determine the appropriate pavement marking material.

[http://www.deldot.gov/information/business/drc/pd\\_files/plan\\_development/striping\\_item\\_guidelines.pdf](http://www.deldot.gov/information/business/drc/pd_files/plan_development/striping_item_guidelines.pdf)

For small projects that do not involve significant resurfacing of a roadway and/or new pavement installation (e.g., commercial and subdivision entrances, patching, Community Transportation Fund projects, Transportation Enhancement projects, etc.), proposed pavement markings should match the existing pavement marking materials along a roadway.

DeIDOT’s Markings Section should be contacted for additional guidance regarding selection of the appropriate pavement marking material.

## **ERADICATION OF PAVEMENT MARKINGS**

### **12. What method should be used to eradicate existing pavement markings?**

Eradication methods include blasting (i.e., hydro, sand, or shot) and grinding. For temporary removal of markings (i.e., less than six months), blackout tape may be used to cover existing pavement markings that will remain as part of the final striping configuration. All methods of pavement marking removal have specific disadvantages including slick pavement and pavement scarring, resulting in potential motorist confusion or safety concerns. DeIDOT’s Markings Section should be contacted for guidance regarding the appropriate eradication method for site specific conditions (e.g., type and thickness of pavement markings, type of pavement, etc.).

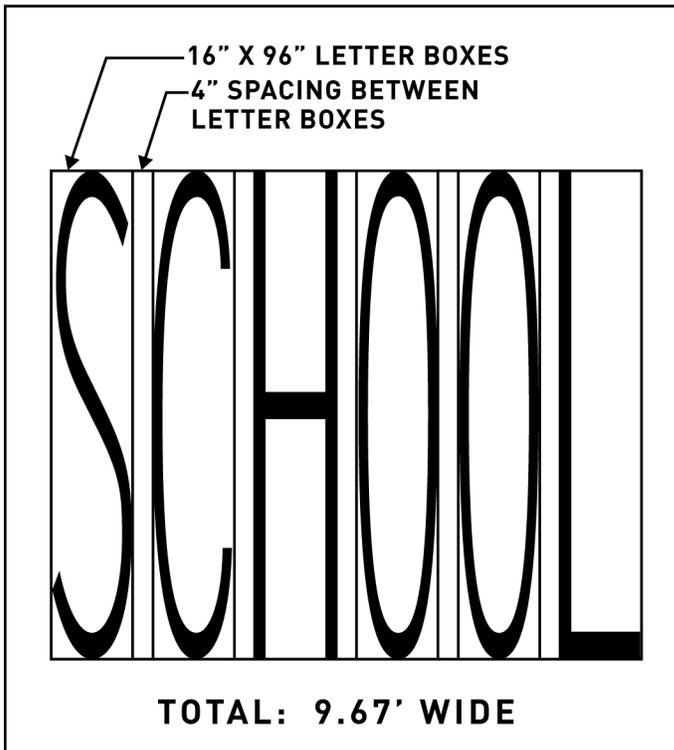
**SCHOOL PAVEMENT MARKINGS**

**13. How should SCHOOL word markings be installed within narrow travel lanes along two-lane roadway?**

The SCHOOL word marking may extend to the width of two travel lanes in one direction; however, the SCHOOL word marking shall not extend into the opposing travel lane. On two-lane roadways with a lane width of 10.5 feet or greater, the standard letter sizes and spacing shown in Figure 1 should be used. On two-lane roadways with lane widths less than 10.5 feet, reduced letter sizes and spacing shown in Figure 2 should be used.

*DeIDOT MUTCD References: Section 7C.06 and Figure 7C-1*

**FIGURE 1**



**FIGURE 2**

